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ABSTRACT

The notion that second language instruction is more effective if begun at an early age is seen as arising from cognitive-nativist and neuropsychological postulates, and from the argument of "affective purity." Each of these positions is reviewed, along with frequently-heard objections to each. A fresh perspective on the issue is thus established as a groundwork for the examination of some specific educational research that bears on the issue of optimum age. This research indicates that late instruction confers an advantage on the learner by virtue of his/her learning efficiency, while early instruction confers an advantage arising from the extended opportunities it provides for language learning in and outside school. The advantages which derive from late instruction are also conferred on the learner who begins early and continues his study through the higher grade levels. It is therefore concluded that high levels of second language proficiency are best achieved by an early start and long duration of instruction, provided that effective teaching methods are employed. (Author/JB)

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Fred Genesee

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Is There an Optimal Age for Starting Second Language Instruction?

The received opinion that prefers an early age for the instruction of children in a second language has its sources in various long-established postulates from non-pedagogical fields. Genesee names them as the cognitive-nativist and neuropsychological positions, and the argument of "affective purity". He reviews each argument and cites some frequently-heard objections, with a view to establishing a fresh perspective on the issue before inspecting some specifically educational research that bears upon it. By a careful weighing of the indications presently available, Genesee argues that advantage seems to lie with an early beginning followed by work at the secondary level.

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Considerable debate has arisen in Canadian educational circles concerning the optimal age for second language learning in school (see, for example, Stern, 1976; and Smythe, Stennett and Gardner, 1975). This is a debate which has recently become heated in discussions of various immersion methods of second language instruction where the advantages of early immersion in French are weighed against the advantages of so-called late immersion, and in discussions of starting dates for second language programs of the ESL or FSL type (English- or French-as-a-second language). Most of the research conducted to date that has investigated the issue systematically has involved an examination of the more traditional techniques such as those which characterize ESL and FSL approaches.

I would like to continue discussion of this issue in this paper. Before doing so, there are two major restrictions to the discussion which I will impose. First, programs in which the target language of the students is also the native language of most other members of the school will not be considered; this includes for example, English children learning French in French schools, or so-called "submersion" programs. This means that consideration will be given only to programs where the students' native language is otherwise dominant. Second, program effectiveness will be defined in terms of second

language learning, and will not include consideration of academic achievement or native language development. There is indeed really no evidence that, in the case of majority group students at least, early or extended instruction in a second language impairs academic achievement or native language development (Genesee, 1977; Genesee, Polich and Stanley, 1977). These restrictions will therefore help to focus discussion of the issue without seriously limiting its applicability to most school settings in Canada.

"Early is better": non-educational perspectives

There are at least three major points of view which traditionally have been used to advocate early instruction in a second language; these include cognitive/nativist, neuropsychological, and affective arguments. Although each of these perspectives has emerged from essentially non-educational disciplines, they have had a good deal of influence on educational attitudes regarding the best age for beginning second language instruction and, therefore, warrant some examination.

According to the cognitive/nativist point of view, early exposure to a second language is advantageous because it capitalizes on the innate language learning ability that all children seem to have. As evidence of such ability, they note that with few exceptions all children learn at least one language with little apparent difficulty and, according to some, with little apparent "teaching" from parents or from other users of the language (Brown, Cazden and Bellugi, 1969; Cazden, 1972). Theoretical support for this position comes from scholars such as Chomsky (1972) and McNeill (1970) who also postulate the existence of innate language learning mechanisms. Thus, according to this point of view, early second language learning is a natural and painless way to acquire competence in a second language. To introduce second language instruction after early childhood would therefore be to fail to take into account these critical cognitive and linguistic predispositions.

There is support for this point of view from neuropsychology. The period of optimal language learning that is postulated by the nativists is thought to coincide with a critical period of neurological development during which the brain demonstrates maximum plasticity and, therefore, maximum potential for development. There is extensive neurophysiological research which indicates that prior to the onset of puberty damage to the brain does not necessarily result in permanent impairment of function; the theory is that other parts of the brain or areas of the brain adjacent to the site of injury assume the functions that were invested in the damaged brain tissue. Brain damage after this critical period, however, often results in permanent, irreversible impairment. The compensating power of the brain during the critical period is so considerable that there are cases of patients who have had an entire hemisphere removed in infancy, owing to

severe injury or disease, and who have subsequently developed a full repertoire of language functions. Thus, it is thought advisable to take advantage of a child's neural plasticity and growth potential by introducing instruction in a second language early in his development.

Furthermore, and more specifically, the optimal period for language learning is thought to coincide with the development of differential hemispheric specialization, particularly as it relates to language functions. In most right-handed people the left hemisphere of the brain usually develops a specialized capacity for language functions, including speech comprehension, speech production, and verbal memory, whereas the right hemisphere is thought to become specialized in processing non-verbal information, such as musical, spatial, and other non-verbal visual material. Complete hemispheric lateralization of these two types of functions is thought to be achieved by about age 13, or around puberty. Accordingly, it is argued by some, most notably Wilder Penfield (1959) and Eric Lenneberg (1967), that completion of this process of cerebral lateralization marks the beginning of the end of an optimal period for language learning, first or second. In other words, it becomes difficult to learn a language in adolescence, or later, because those parts of the brain which are responsible for language learning become fixed at puberty and, therefore, are less able to acquire new skills. The neuropsychological evidence of a critical period for neural plasticity and the development of cerebral lateralization of function supports the nativist argument of a critical period for second language learning early in the child's development.

Finally, there is the argument of what I shall call "affective purity". Young children are thought to be better second language learners because they have fewer affective predispositions which interfere with their learning. They are thought to be naïve, willing recipients of the learning experience. Older students, on the other hand, are felt to have had experiences or to have formed attitudes which might jeopardize learning, especially second language learning, which is highly loaded with personal and political significance. In view of the work by Gardner and Lambert (1972) and others, which has demonstrated the importance of attitudes in second language learning, this argument could be quite important.

These rather theoretical arguments have gained considerable support, in the mind of their proponents at least, from the disappointing results of most second language programs offered at the secondary school level, and from anecdotal evidence of complete bilingualism among immigrant children, in marked contrast to the mediocre second language skills which adult immigrants are usually thought to acquire.

Views called into question

All of these points of view, however. can be called into question or qualified. For example, in contrast to the nativists, others have

argued that first language learning is in fact a difficult and time-consuming task, even for children, and, therefore, it is specious to argue from the nativist position that second language learning is easy for children because all children learn a language. Smythe, Stennett and Gardner have estimated that by the age of six, the average child has listened to his native language for 17,520 hours and has vocalized for 2,190 hours, if vocalizations are calculated on a conservative basis of one hour per day. In this light, it is difficult to view first language learning as easy, even for children. In fact, the job of first language learning may be made more difficult by the fact that infants and children are relatively unsophisticated, immature learners. The first language learner must develop a myriad of skills, including the perceptual, motor, intellectual and social, in addition to the linguistic. On the other hand, older students may actually be more efficient learners because they have already developed many or most of the cognitive skills necessary for language learning. The adolescent's more mature cognitive system, with its capacity to absract, classify and generalize, may be better suited for the complex task of second language learning than the unconscious, automatic kind of learning which is thought to be characteristic of young children.

The argument based on neurological plasticity must also be questioned. First, it is not valid to infer from cases of adults with impaired first language functions, due to brain damage or surgical intervention, that adults with intact neurological systems will have difficulty learning a second language. Second, recent empirical evidence suggests that cerebral lateralization, which some have maintained is not completely realized until puberty, may be well-established, if not completed, by school age (Dorman and Geffner, 1974; Kimura, 1967; Knox and Kimura, 1970). Thus, the argument that the course of effective second language learning is constrained by the course of cerebral development may be more complex than initially thought. Third, and finally, there are cases reported of individuals who have acquired some linguistic competence after the so-called critical period despite extreme psychological deprivation (Curtiss, 1977).

Finally, the argument of "affective purity", while in large measure probably valid, does not give due credit to adolescents or adults who have a strong motivation to learn a second language. While it may be advantageous to have a group of young second language learners who are open and non-prejudiced with respect to school or to the target language and its associated culture and people, it is also undoubtedly advantageous to have a group of highly motivated adolescent learners who have made a commitment to second language learning. One cannot simply assume that all adolescents are recalcitrant as second language learners.

Thus, these points of view may provide the educator with provocative possibilities, but they cannot serve as unqualified or exclusive justifications for either early or late second language learning. An

examination of the educational literature on the topic may be more instructive.

Research findings: educational perspectives

A number of empirical studies have systematically assessed the relative success of second language learners at different age levels. One of the earliest studies in the area was carried out by Thorndike and his associates in 1928 using Esperanto (in Burstall, 1974). According to Burstall, Thorndike found that younger learners acquired Esperanto more slowly than older learners — the age range being 9 to 51. More recently, Justman and Nass (1956) found that students who had been introduced to the study of French as a second language in elementary school performed no better on final exams in French that were administered in secondary school than did students who had been introduced to the same French course in secondary school. In a similar comparison, however, they found that students who had studied Spanish in elementary school were superior to students who had studied it in secondary school.

Using an experimental language learning technique, Asher and Price (1967) found that, given the same amount of training, adults acquired better listening comprehension skills than did children in grades 2, 4 and 8. However, their training procedure consisted of a very short-term exposure.

In his 1963 UNESCO report on *Foreign Languages in Primary Education*, David (H.H.) Stern describes an experimental second language program in Sweden where English was introduced to students in grades 1 to 4. He reports that detailed, statistical analyses of the results of this program reveal that both pronunciation and listening skills were better the older the student — the age span being 7 to 11 years.

Fathman (1975) reports that older immigrant children in U.S. schools (11-15 years) learned English syntax and morphology, but not phonology, faster than did younger immigrant students (6-10 years). She also found that length of stay in the U.S.A. was predictive of level of English language acquisition — children who had been in the U.S.A. longer had learned more English. This raises the issue of duration of second language instruction, which I will return to later.

Finally, Claire Burstall in her report on *Primary French in the Balance* claims that children who had been introduced to French as a second language in primary school at age 8 scored at a lower level on tests given when they were 13 years old than control students who had been studying French for the same length of time but who were, on the average, two years older than the experimental children. In

other words, early introduction to French did not produce superior performance when length of instruction was equated.

There are probably methodological weaknesses in these studies, and there are certainly limitations on the generalizability of the findings from the individual studies, discussion of which is beyond the scope of this paper. Notwithstanding these limitations, there is a rather noteworthy consensus among these studies concerning the learning rates of students at different ages — older students seem to be more efficient learners than younger students. That is to say, given the same amount of instruction, or even less, adolescents will learn as much as or more than younger children. Smythe, Stennett and Gardner (1975) came to a similar conclusion. This is not a new idea, especially to most practicing educators. Would we expect primary school children to learn mathematical or scientific concepts faster than adolescents? I think not.

Thus, there seems to be an advantage to late instruction in a second language; this advantage derives from the efficiency of the learning process characteristic of the older student. At the same time, there is a disadvantage to starting second language instruction late, namely the relatively reduced time period available for learning. There is evidence from a number of studies that duration of instruction is indeed an important predictor of second language learning. Carroll (1975), in an international study on the teaching of French as a foreign language in eight countries, found that, among a number of different predictors, length of French instruction was the most important predictor of second language learning. Burstall found that experimental students who had been introduced to French instruction in the primary grades, starting at age 8, acquired greater proficiency than did same-aged students who had received less instruction in French.

Numerous studies in the Montreal and Ottawa areas have demonstrated the advantage of extended French programs; for example, enriched FSL versus regular FSL (Genesee, Lambert and Tucker, 1977), early and late immersion versus FSL (Genesee, 1977; Genesee, Polich and Stanley, 1976), and two-year immersion versus one-year immersion programs (Genesee and Leblanc, 1978). In fact, the finding that students in early immersion programs have superior proficiency in French compared to students in late immersion programs can perhaps be explained by the duration factor (Genesee, 1976; Genesee and Leblanc, 1978; Bruck, Lambert and Tucker, 1976; Troué, 1977).

Thus, there is an advantage to early instruction in a second language as perhaps in the case of early instruction in any skill, which derives from the opportunity for more instructional time, rather than from the age factor *per se*. Instruction commencing in kindergarten, for example, makes available 12 years of schooling during which second language instruction and learning can take place, in contrast

to the 5 years that are possible if instruction begins in secondary school. A corollary advantage of extended instructional time is the opportunity it affords the elementary school child to practise his second language outside of school. Extracurricular use of the second language is tantamount to extending the learning experience. Needless to say, this extension applies to older students as well, but their shortened program will reduce their extra-curricular opportunities commensurately. The possibility of extracurricular use of the second language and its associated benefits in terms of enhanced language proficiency should be a major consideration in bilingual communities where real opportunities to use the language exist.

Second language programs which begin early and are continuous can also benefit from the advantages of increased learner efficiency as the students mature. The language competence that the young child has acquired in the primary grades can serve as a solid base on which to build more sophisticated language skills in the senior grades. For example, instruction in the rules of discourse (that is to say, appropriate language usage in face to face interaction according to the topic of discussion) and sociolinguistic usage (appropriate use of the language taking into account socio-cultural cues) can be provided if the basic rules of the language are learned early enough. It is often difficult, if not impossible, to provide such specialized language instruction to the late learner, especially if his second language program begins in secondary school, because of the demands made on his timetable to accommodate all of the academic courses he will need to graduate or to enter institutions of higher learning.

In sum, the combined advantages of early instruction point in the direction of greater opportunity overall for language learning. The true significance of these advantages cannot be determined, however, without considering at least two additional factors, namely, the standard of second language proficiency expected, and the nature of second language pedagogy practised.

Standards and pedagogies

In bilingual communities where the standards of second language proficiency are necessarily high and where daily opportunities exist to use and practise the language outside school, starting instruction in the second language early can provide greater possibilities of achieving the expected standards by capitalizing on the advantages of both extended instructional time and increased learning efficiency as the students mature. Furthermore, in such communities the motivation or necessity to learn the language may be too great to delay the introduction of second language instruction until the senior elementary or secondary school grade levels. On the other hand, in monolingual communities, a later introduction of second language instruction might

yield acceptable second language competence in a relatively short period of time.

What is being suggested here is that the selection of an early or late starting date may depend, to some extent, on the language goals set by the community. Standards of second language proficiency have been ignored by the empirical research discussed earlier. In these studies, the program which yielded higher test scores was regarded as the better program, and therefore the age at which that program was introduced was regarded as the better age for starting second language instruction. The comparisons that were made in these studies were between groups of second language learners. Other second language learners were taken as the standard. Such a comparison may be appropriate in communities where the emphasis is on the teaching of a language that is foreign and where there is no pretence or real necessity to develop children with functional competence in a second language. In bilingual communities, on the other hand, a more appropriate standard is probably that of native speakers of the target language. With this as the standard, one might find that while one program of second language instruction produces children who are more proficient than those in another, one might still not be prepared to accept either program as adequate. Adequacy under these social conditions will depend upon whether the level and quality of the learner's language skills are sufficient to meet the real life demands made on the learner outside the classroom.

Whether or not the required language competencies are acquired will depend as much on pedagogical considerations as on time or age factors alone. Variations in second language pedagogy along with variations in age have also not been investigated systematically. Younger and older second language learners have been compared after participation in essentially the same types of programs, or in programs which are not defined clearly enough so that critical pedagogical variations can be distinguished. Even in the much researched French immersion programs, for example, relatively little is known about the actual classroom procedures that are used by teachers. There is no reason to believe that the basic pedagogical techniques used in the early and late versions of immersions are really different except for minor adjustments to the different age levels of the two learner groups. If this is true, then the major feature distinguishing these two programs is indeed one of time.

Clearly, however, it is not sufficient simply to give more instruction in order to produce more learning — class time must be translated into learning time. Pedagogical techniques must be developed whereby the additional opportunities that are made possible by early instruction are made profitable in terms of real learning. Similarly, pedagogical techniques must be developed to capitalize on the efficiency of the older learner and on the particular learning style of the young learner. There is a need to experiment with and evaluate alternative

approaches to second language teaching, such as activity-centred versus teacher-centred programs (Stevens, 1976) or the use of notional syllabuses (Wilkins, 1976), with learners at different age levels. As long as such alternatives remain untried and untested, the responsibility for successful early or late second language learning will fall on the student. Clearly we can begin to assess the merits of beginning second language instruction at different age levels only when the optimal programs for different levels have been developed and tried.

In conclusion, it seems that there are advantages related to time and learner efficiency which are associated differentially with early and late instruction in a second laguage. Late instruction confers an advantage on the learner by virtue of his learning efficiency, while early instruction confers an advantage by virtue of the extended opportunities it provides for language learning in and outside school. The advantages which derive from late instruction will also be conferred on the learner who begins early if he continues his learning through the higher grade levels. The combined advantages of extended time and opportunities furnished by early instruction probably make it more conducive to attaining the higher levels of second language proficiency, provided that full advantage is taken of them through effective pedagogy.

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